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Current Trends in Antibiotic Resistance

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Antimicrobial resistance is an important concern for the public health authorities at global level.Patients with infections caused by Antibiotic drug-resistant bacteria are at increased risk of worse clinical outcomes and death, and consume more health care resources than patients infected with non-resistant strains of the same bacteria.
Resistance in *Klebsiella pneumoniae* – common intestinal bacteria that can cause life-threatening infections – to a last-resort treatment (carbapenem antibiotics) has spread to all regions of the world. *K. pneumoniae* is a major cause of hospital-acquired infections such as pneumonia, bloodstream infections and infections in newborns and intensive-care unit patients. In some countries, because of resistance, carbapenem antibiotics do not work in more than half of people treated for *K. pneumoniae* infections.
Resistance in *Escherichia coli* to one of the most widely used medicines for the treatment of urinary tract infections (fluoroquinolone antibiotics) is very widespread. There are countries in many parts of the world where this treatment is now ineffective in more than half of patients.
Resistance to first-line drugs used to treat infections caused by *Staphylococcus aureus* – a common cause of severe infections in health facilities and communities – is widespread. People with MRSA (methicillin-resistant *Staphylococcus aureus*) are estimated to be 64% more likely to die than people with a non-resistant form of the infection.Colistin is the last-resort treatment for life-threatening infections caused by Enterobacteriaceae, which are resistant to carbapenems. Resistance to colistin has recently been detected in several countries and regions, making infections caused by such bacteria untreatable.

In developing countries like India, recent hospital and some community based data showed increase in burden of antimicrobial resistance. Research related to antimicrobial use, determinants and development of antimicrobial resistance, regional variation and interventional strategies according to the existing health care situation in each country is a big challenge. Recent data from Google search, Medline and other sources were collected which was reviewed and analyzed that hospital based studies showed higher and varied spectrum of resistance in different regions while there are limited number of community based studies at country level. There exists lacunae in the structure and functioning of public health care delivery system with regard to quantification of the problem and various determining factors related to antimicrobial resistance. There is an urgent need to develop and strengthen antimicrobial policy, standard treatment guidelines, national plan for containment of AMR and research related to public health aspects of AMR at community and hospital level in India.

Keywords: AMR, Challenges, Worldwide, Problem burden, Antimicrobial policy.